Message

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Sent: 4/6/2016 2:19:06 PM
To: Gordon Pierce [Gordon.Pierce@dphe.state.co.us]; Greg Harshfield [gregory.harshfield@state.co.us]
Subject: Lightning Induce ozone and Mines Peak

Gentlemen:

Atmospheric science textbook statements attribute some contribution to background ozone as coming from lightning. My grad school based perception is that lightning induced NOx is the primary path for this background source; this is reflected in our background ozone white paper (https://www.epa.gov/sites/production/files/2016-03/documents/whitepaper-bgo3-final.pdf): "Other natural sources of O3 precursor emissions include wildfires, lightning, and vegetation."

On the other hand, it is being suggested that thunderstorms/lightning should be a new class of ozone exceptional events. I have to admit, I did smell ozone during the thundersnow in Denver last week (or the week before?). The odor threshold for ozone is variously given as 8 to 30 ppb (or higher), so that would imply we should be able to see at least short term ozone enhancement during thunderstorms on monitors.

I am thinking that looking at high resolution ozone data from Mines Peak would be a good way to look for lightning induced ozone magnitude and duration. Doing that would depend on identifying thunderstorms in the area, or, better, lightning strikes on the peak. I don't know if any of your neighbors on the peak are running lightning sensors, or if I can find access to regional lightning strike maps, but I thought I would float the idea with you and ask if you know of lightning strike data that would make this search practical.

Let me know if you know of an appropriate data source.

Richard
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